

Notice of Allowability

Application No.

09/549,432

Examiner

Herng-der Day

Applicant(s)

BERNARDINI ET AL.

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendments received 10/13/04 and 6/13/05.
2. ☒ The allowed claim(s) is/are 1-30.
3. ☒ The drawings filed on 13 October 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 10/13/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 06132005.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Thay Phan
Thai Phan
Patent Examiner

DETAILED ACTION

1. This communication is in response to Applicants' Amendment and Response to Office Action dated July 8, 2004, mailed October 8, 2004, received by PTO October 13, 2004, and Applicants' Supplemental Amendment faxed June 13, 2005.

1-1. Claims 1, 4, 10, 14-16, and 27-30 have been amended. Claims 1-30 are pending.

1-2. Claims 1-30 have been examined and allowed.

Reasons for Allowance

2. The following is an Examiner's statement of reasons for allowance:

2-1. The closest prior art of record discloses:

(1) A method for surface reconstruction (Crossno et al., "Spiraling Edge: Fast Surface Reconstruction from Partially Organized Sample Points").

(2) A method for sampling and reconstructing manifolds (Bernardini, "Sampling and reconstructing manifolds using alpha-shapes");

(3) A method for surface reconstruction (Hoppe et al., "Surface Reconstruction from Unorganized points").

2-2. Independent claim 1 is directed at a computer implemented method for reconstructing the surface of an object. Although surface reconstruction is obvious as shown in the prior art of record, this independent claim identifies the distinct features of "finding a seed triangle in said scan data to form a triangulated mesh", "pivoting a ball around an edge of said triangulated mesh until a new point in said scan data is hit by said ball, wherein said edge and said new point define

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a new triangle”, and “adding said new triangle to said triangulated mesh”, as shown in FIG. 2A and FIG. 6.

Because the closest prior art does not teach or suggest reconstructing the surface by the algorithm of pivoting a ball, claim 1 is deemed allowable.

Dependent claims 2-13 are allowable as they depend on the allowed independent claim 1.

2-3. Independent claim 14 is directed at a computer implemented method for reconstructing the surface of an object. Although surface reconstruction is obvious as shown in the prior art of record, this independent claim identifies the distinct features of steps ii, iii, iv, and v, as shown in FIG. 2A and FIG. 6.

Because the closest prior art does not teach or suggest reconstructing the surface by the algorithm of pivoting a ball, claim 14 is deemed allowable.

Dependent claims 15-26 are allowable as they depend on the allowed independent claim 14.

2-4. Independent claims 27 and 28 are directed at a system for reconstructing the surface of an object having the equivalent method limitations as in the allowed claims 1 and 14 respectively. Therefore, claims 27 and 28 are deemed allowable for the same reasons as claims 1 and 14.

2-5. Independent claims 29 and 30 are directed at an article of manufacture for reconstructing the surface of an object having the equivalent method limitations as in the allowed claims 1 and 14 respectively. Therefore, claims 29 and 30 are deemed allowable for the same reasons as claims 1 and 14.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

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fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Herng-der Day whose telephone number is (571) 272-3777. The Examiner can normally be reached on 9:00 - 17:30. Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: (571) 272-2100.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Jean R. Homere can be reached on (571) 272-3780. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Herng-der Day *H.D.*
June 13, 2005

Thai Pham
Thai Pham
Patent Examiner